



Address Allocation Methodologies & Provider Independent Addressing

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NAv6TF/ARIN XV IPv6 Conference

Orlando, Florida

April 17 – 21, 2005





Overview

- Introduction
- Address Allocation Methodologies
- Provider Independent IPv6 Addressing
- Summary
- Q&A



Introduction

- Purpose of Address Allocation Methodologies
 - Govern address consumption
 - Facilitate planning
 - Promote flexibility
 - Promote efficient network operations
- Some Alternatives
 - Sparse
 - Sequential
 - Rate Sparse



Introduction

- Relevance to Provider Independent IPv6 Addressing



Address Allocation Methodologies



Address Allocation Methodologies

- Sparse Allocation (distributed)
 - + Designed to maximize aggregation of address space within allocated blocks
 - + Each new allocation subdivides the largest allocation window in half
 - Allocations are spread across entire allocated address space
 - + Promotes routing efficiencies



Address Allocation Methodologies

- Sparse Allocation (distributed)
 - Potentially more complex to manage and track
 - Groups of potentially unused address blocks



Address Allocation Methodologies

- Sequential (left to right)
 - + Simplifies the process of address allocation
- Comparable to current IPv4 system, where each new allocation window is drawn from the remaining free pool in sequence
- Potentially difficult to re-size blocks after initial allocation
- Could affect ability to allocate larger blocks



Address Allocation Methodologies

- Rate-sparse (combination)
 - + Each new allocation subdivides a window in half, where the selected window is the slowest growing allocation
 - + Somewhat of a balance between sparse and sequential
 - + Potentially less complex, still challenging



Provider Independent Addressing



Provider Independent Addressing

- Affect of Provider Independent Addresses on
 - Address Allocation Methodology
 - Does PI increase complexity?
 - Is one methodology better than others and to whom does this apply?
 - Routing Infrastructure



Provider Independent Addressing

- Recent Public Policy on Provider Independent Addressing
 - Not aligned with fundamentals of IPv6?
 - Potential for inefficiencies?
 - Promote adoption of IPv6?
 - Benefits to adopters?



Other Considerations

- For Address Allocation the appropriate methodology should be determined based on
 - Size of allocated address space
 - Type of organization
 - Growth rate and potential
 - Other factors?



Other Considerations

- Consider affect on HD Ratio
 - How will allocation methodology affect this and ultimately subsequent address space request from registry?



Summary

- Purpose of selecting Address Allocation Methodologies
- Address Allocation Methodology selection based on various criteria and operational impact
- Consider the affects of Provider Independent Addressing



Q & A

Thank you!

Please participate in the NAv6TF IPv6 Survey
<http://survey.nav6tf.org/participate>

Please send questions, comments, and suggestions
via email to

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